

CAMPUS LIGHTING

LIGHTING EFFICIENCY OPTIONS FOR STUDENT RESIDENTIAL LIVING UNITS:
A STUDY AT NORTHEASTERN UNIVERSITY, BOSTON, MASSACHUSETTS


LAWRENCE BERKELEY NATIONAL LABORATORY
U.S. DEPARTMENT OF ENERGY

ARKWRIGHT EDUCATION
ARKWRIGHT MUTUAL INSURANCE CO.

Fact Sheet

Low-priced, luminous and popular, torchiere-style halogen lamps consume high levels of energy and operate at high temperatures, posing a fire hazard of concern to federal safety officials, risk managers and others. According to industry estimates, approximately 15 million of these lamps are sold each year. The ENERGY STAR® labeling program of the U.S. Environmental Protection Agency and the U.S. Department of Energy recommends compact fluorescent lamps (CFL) torchiere-style fixtures, a safer, more energy-efficient lighting source.

Lawrence Berkeley National Laboratory and Arkwright Mutual Insurance Company conducted a study of CFL torchieres at Northeastern University in Boston to evaluate their performance and acceptance among students who frequently rely on traditional halogen lamps. The findings of that research are as follows:

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- ← **ENERGY EFFICIENCY:** The compact fluorescent is more energy-efficient than the halogen torchiere. Based on a comparison between the standard 300-watt halogen and the 65-watt compact fluorescent, average energy savings of 80 percent were realized, with annual energy costs lowered by an estimated \$42 dollars per double room and \$84 per apartment. (This assumes average annual usage of about 972 hours per fixture and an electricity price of 9 cents/kWh).
 - ← **COST:** Prices for most compact fluorescent torchiere fixtures fall into the range of \$50 to \$100, as opposed to the average \$20 halogen. However, after researchers accounted for energy costs, they found that the compact fluorescent typically paid for itself within a 6 to 12 month period, while the halogen could consume \$100 per year in energy costs.
 - ← **TEMPERATURE/FIRE HAZARD:** Compact fluorescent units operate at temperatures dramatically lower and safer than the halogen units they replace. Average halogen torchieres operate between 700°F to 1000°F, and have been the source of 350 reported house fires, 30 deaths, and 114 non-fatal injuries in recent years. Between 1996 and the middle of 1997, halogen torchieres were responsible for an additional 100 fires in dormitories alone. Compact fluorescent units safely operate at a temperature no higher than 140°F.
 - ← **FINDINGS:** Students were interviewed at the end of the 45-day trial. They reported complete satisfaction with the illumination the new compact fluorescent units provided. Students even removed some of the fixtures, citing an overabundance of light.

CONCLUSION: Compact fluorescent lamps greatly cut energy bills while reducing the safety hazards posed by halogen torchieres. Students indicated a desire for new compact fluorescent fixture designs mounted as wall or ceiling units. They found the quality and quantity of light provided by CFL fixtures was equal to or better than that provided by halogen torchieres. Universities can derive financial and safety benefits from CFL torchieres. Risk managers and insurers are recognizing that replacing halogen torchieres with compact fluorescent fixtures is an excellent loss prevention measure.

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